

### CLAIMS

1. A sanitizer composition having improved surface retention, comprising:
  - (a) water;
  - (b) about 1 ppm to about 3000 ppm of an antimicrobial agent; and
  - (c) a retention aid comprising about 0.01 wt% to about 3.0 wt% of a mixture of a non-ionic surfactant and an anionic surfactant;wherein:

the non-ionic surfactant has a polar non-ionic group attached to a first alkyl group having 8 to 20 carbon atoms; the anionic surfactant has an anionic group attached to a

second alkyl group having 8 to 20 carbon atoms; and the ratio of the non-ionic surfactant to the anionic surfactant is about 0.1:1 to about 0.5:1.
2. The composition of claim 1 additionally comprising (d) a magnesium ion source.
3. The composition of claim 1 wherein the magnesium ion source (d) is a magnesium salt.
4. The composition of claim 1 wherein the antimicrobial agent is selected from organic peracids, peracid generators, persulfates, peroxides, percarbonates, perchlorates, chlorine dioxide, hypochlorites, phenolics, iodine, iodides, iodophors, and mixtures of any two or more thereof.
5. The composition of claim 1 in which the first and second alkyl groups are straight chain, the first alkyl group is substituted with the non-polar non-ionic group on a terminal carbon atom, and the second alkyl group is substituted with the anionic group on a terminal carbon atom.
6. The composition of claim 5 in which the first and second alkyl groups have 10 to 18 carbon atoms.
7. The composition of claim 5 in which the first and second alkyl groups have 11 to 16 carbon atoms.
8. The composition of claim 6 in which the first and second alkyl

groups have the same or substantially the same number of carbon atoms

9. The composition of claim 1 in which the non-ionic surfactant is lauryl alcohol and the anionic surfactant is sodium lauryl sulfate, magnesium lauryl sulfate or mixture thereof.
10. The composition of claim 1 in which the antimicrobial agent is an organic peracid or a mixture of organic peracids.
11. The composition of 10 in which the organic peracid is peracetic acid.
12. The composition of claim 10 in which the amount of organic peracid or mixture of organic peracids, is about 25 ppm to about 2600 ppm.
13. The composition of claim 10 in which the amount of organic peracid acid or mixture organic peracids, is about 75 ppm to about 1000 ppm.
14. The composition of claim 1 in which the antimicrobial agent is peracetic acid or a mixture of peracetic acid and another organic peracid, and the retention aid comprises about 0.05 wt% to about 2.0 wt% of the composition.
15. The composition of claim 1 in which the antimicrobial agent is peracetic acid or a mixture of peracetic acid and another organic peracid, and the retention aid comprises about 0.1 wt% to about 0.5 wt% of the composition.
16. The composition of claim 1 in which the antimicrobial agent is peracetic acid or a mixture of peracetic acid and another organic peracid, and the ratio of the non-ionic surfactant to the anionic surfactant is about 0.12:1 to about 0.3:1.
17. The composition of claim 1 in which the antimicrobial agent is peracetic acid or a mixture of peracetic acid and another organic peracid, the non-ionic surfactant is lauryl alcohol, and the anionic surfactant is sodium lauryl sulfate, magnesium lauryl sulfate or a mixture thereof.
18. The composition of claim 17 additionally comprising a magnesium salt in an amount of about 0.01 wt% to about 3.0 wt%.
19. A method for sanitizing a surface, comprising applying a sanitizer composition of claim 1 to the surface for a time sufficient to sanitize the surface.
20. The method of claim 19 in which the surface is metallic, concrete, plastic, or any combination thereof.
21. The method of claim 19 in which the surface is an animal carcass, a fruit or

vegetable, or a meat, poultry or seafood product.

22. The method of claim 19 in which the sanitizer composition is applied as a foam or film.
23. A retention aid concentrate for admixture with an antimicrobial composition, comprising a mixture of non-ionic surfactant and an anionic surfactant, in a ratio of about 0.1:1 to about 0.5:1; wherein:  
the non-ionic surfactant has a polar non-ionic group attached to a first alkyl group having 8 to 20 carbon atoms, and the anionic surfactant has an anionic group attached to a second alkyl group having 8 to 20 carbon atoms.
24. The concentrate of claim 23 further comprising a magnesium ion source.
25. The concentrate of claim 23 wherein the first and second alkyl groups are straight chain, the first alkyl group is substituted with the non-polar group on a terminal carbon atom, and the second alkyl group is substituted with the anionic group on a terminal carbon atom.
26. The concentrate of claim 23 wherein the first and second alkyl groups have 10 to 18 carbon atoms.
27. The concentrate of claim 23 wherein the first and second alkyl groups have 11 to 16 carbon atoms.
28. The concentrate of claim 26 wherein the first and second alkyl groups have the same or substantially the same number of carbon atoms.
29. The concentrate of claim 23 in which the non-ionic surfactant is lauryl alcohol and the anionic surfactant is sodium lauryl sulfate, magnesium lauryl sulfate or a mixture thereof.
30. The concentrate of claim 29 further comprising a magnesium salt.
31. The concentrate of claim 24 in which the magnesium ion source is magnesium sulfate, and the ratio of the magnesium sulfate to the non-ionic surfactant and anionic surfactant is about 0.02:1 to about 5:1.
32. A sanitizer kit comprising a first part and a second part, in which the first part  
comprises an aqueous solution or dispersion of an antimicrobial agent, and the second part comprises a retention aid as defined in claim 1.
33. The kit of claim 32 in which the antimicrobial agent is peracetic acid or a

mixture of peracetic acid and another organic peracid, in an amount of about 5 wt% to about 15 wt% of the first part.

34. The kit of claim 33 in which the non-ionic surfactant is lauryl alcohol and the anionic surfactant is sodium lauryl sulfate, magnesium lauryl sulfate or mixture thereof.

35. The kit of claim 32 further comprising, in the second part, a magnesium ion source.

36. The kit of claim 35 in which the magnesium ion source is a magnesium salt.

37. A sanitizer composition having improved surface retention, comprising:

(a) water; and

(b) about 1 ppm to about 3000 ppm of an antimicrobial agent;

a retention aid comprising (i) about 0.025 wt% to about 1.0 wt% of a biopolymer thickening agent, and (ii) about 0.01 wt% to about 3.0 wt% of at least one surfactant;

wherein the composition has a viscosity of about 3 cP to about 15000 cP at 23°C.

38. The composition of claim 37 further comprising a magnesium ion source.

39. The composition of claim 37 wherein the biopolymer thickening agent is selected from polysaccharides and heteropolysaccharides.

40. The composition of claim 39 wherein the polysaccharides are selected from galactomannans, glucomannans, galactans, carrageenans, polyuronic acids, pectins, glucans, alginic acids and salts thereof; and the heteropolysaccharides are selected from gellan, whelan, natural gums and waxes, starch, and arabinogalactan.

41. The composition of claim 37 in which the biopolymer thickening agent is selected from guar gum, a mixture of guar gum and xanthan, and a mixture of xanthan and glucomannan.

42. The composition of claim 37 wherein the antimicrobial agent is selected from organic peracids, peracid generators, persulfates, peroxides, percarbonates, perchlorates, chlorine dioxide, hypochlorites, phenolics, iodine, iodides, iodophors, and mixtures of any two or more thereof.

43. The composition of claim 37 wherein the surfactant is a mixture of a non-ionic and an ionic surfactant.

44. The composition of claim 37 wherein the surfactant is a mixture of a non-ionic surfactant and an anionic surfactant, the non-ionic surfactant has a polar non-ionic group attached to a first alkyl group having 8 to 20 carbon atoms, the anionic surfactant has an anionic group attached to a second alkyl group having 8 to 20 carbon atoms, and the ratio of the non-ionic surfactant to the anionic surfactant is about 0.1:1 to about 0.5:1 .

46. The composition of claim 44 in which the first and second alkyl groups are straight chain, the first alkyl group is substituted with the polar group on a terminal carbon atom, and the second alkyl group is substituted with the anionic group on a terminal carbon atom.

47. The composition of claim 43 in which the non-ionic surfactant is a C8-C20 alkyl alcohol and the ionic surfactant is selected from salts of sulfate esters of linear aliphatic C8-C20 aliphatic alcohols.

48. The composition of claim 37 in which the surfactant comprises a mixture of (i) lauryl alcohol and (ii) sodium lauryl sulfate, magnesium lauryl sulfate or a mixture thereof, in a ratio of (i) to (ii) is about 1:1 to about 1:5.

49. The composition of claim 38 wherein the magnesium ion source is a magnesium salt in an amount of about 0.01 wt% to about 3.0 wt%.

50. A method for sanitizing a surface, comprising applying a sanitizer composition of claim 37 to the surface for a time sufficient to sanitize the surface.

51. The method of claim 50 wherein the sanitizer composition further includes a magnesium ion source.

52. A sanitizer kit comprising a first part and a second part, in which the first part comprises an aqueous solution or dispersion of an antimicrobial agent, and the second part comprises a retention aid including a surfactant, as defined in claim 37.

53. The sanitizer kit of claim 52 in which the surfactant comprises a mixture of (i) lauryl alcohol and (ii) sodium lauryl sulfate, magnesium lauryl sulfate or mixture thereof, in a ratio of (i) to (ii) of about 0.1:1 to about 0.5:1, and the retention aid further comprises a magnesium ion source.

54. The sanitizer kit of claim 53 in which the antimicrobial agent is peracetic acid or a mixture of peracetic acid and another organic peracid, and the magnesium ion source is a magnesium salt in an amount of about 0.01 wt% to about 3.0 wt%.